



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,325	12/12/2003	Claude Beaulieu	86200-11	9090

7590 11/30/2005

Stephan P. Georgiev
SMART & BIGGAR
Suite 3400
1000 de la Gauchetiere Street West
Montreal, QC H3B 4W5
CANADA

EXAMINER

KIANNI, KAVEH C

ART UNIT	PAPER NUMBER
----------	--------------

2883

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,325

Applicant(s)

BEAULIEU ET AL.

Examiner

Kianni C. Kaveh

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 39-47 and 57-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 19, 20, 38 and 48 is/are rejected.
- 7) ☒ Claim(s) 2-18, 21-37, 49-56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Newly submitted claims 57-67 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 1-38 and 48-52 are directed to treating a substrate sensitive to electromagnetic radiation including using first and second masks and creating interference beam pattern over a limited portion of the treatment area. While claims 57-67 are directed to invention(s) including an apparatus for creating grating on an optical waveguide and said apparatus comprising an optical system including beams having first and second cross-section areas, creating grating through radiation, and inducing a non-linear index of refraction changed over the treatment area. Thus each of the above group inventions directed to an invention that is distinct and requires a different search than that of other group invention. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 57-67 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Allowable Subject Matter

Claims 2-18, 21-37, 49-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2883

Claims 49-50 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the first and the second conditioned beams of electromagnetic radiation induce a predetermined gaseous profile in the substrate in combination with the rest of the limitations of the base claim.

Claims 51-52 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein said first mask imparts a first cross-sectional shape to the first beam of electromagnetic radiation, said second mask imparts a second cross-sectional shape to the second beam of electromagnetic radiation, the first cross-sectional shape being different from the second cross-sectional shape in combination with the rest of the limitations of the base claim.

Claims 53 and 55 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the treatment area has: a first portion exposed to only one of the first and the second conditioned beams of electromagnetic radiation; and a second portion exposed to both the first and the second conditioned beams of electromagnetic radiation, the second portion being the limited portion in combination with the rest of the limitations of the base claim. Claims 2-18 and 54-56 depend on claim 53, and claims 21-37 depend on claim 55 and therefore they are also allowable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 19, 20, and 38 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land (US 6067391).

Regarding claims 1, Land teaches an apparatus for treating a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), comprising;

a) a first mask G2 for conditioning a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) a second mask G3 for conditioning a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) the first and the second conditioned beams of electromagnetic radiation (see fig. 14/16 items radiation beams) being characterized in that:

i) when they are directed toward the waveguide sensitive to electromagnetic radiation, a treatment area of the substrate sensitive to electromagnetic radiation is exposed to electromagnetic radiation (shown in at least fig. 14 and 16; see at least col. 9, last parag.-col. 10, 1st parag.);

ii) the first and the second conditioned beams of electromagnetic radiation interact to create an Interference pattern over a limited portion of the treatment area (shown in at least fig. 14 and 16 in which the beam first being conditioned by Grating G1 and subsequently conditioned by Gratings G2 and G3 and then the resulting beams treat a limited portion of the substrate/waveguide; see also at least col. 9, last parag.-col. 10, 1st parag.); wherein the Brag grating has an apodization (see page 35, lines 8-19).

However, Landin the first embodiment does not specifically teach wherein the above waveguide is a substrate. Nevertheless, in another embodiment Land states that a waveguide exposed and effected/sensitive by/to the EM radiation can be substrate-waveguides (see at least col. 10, 1st parag.). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made combine different embodiments of Land by substitute the above waveguide by a substrate/substrate-waveguide, since such apparatus, motivated by, providing high transmission optical system with multiple refractive indices (see col. 2, 4th paraqq.).

Regarding claim 19, Land further teaches wherein the first beam of electromagnetic radiation a substrate sensitive to electromagnetic radiation having an index of refraction modified (see at least fig. 1, item modified refractive index of a waveguide/substrate).

Regarding claim 20, Land teaches a method for Inducing a modification of the Index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), comprising;

a) conditioning with a first mask a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) conditioning with a second mask a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) directing the first and the second conditioned beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area of the substrate to electromagnetic radiation (see fig. 14/16 items directed radiation beams);

d) the first and the second conditioned beams of electromagnetic radiation interact to create an interference pattern over a limited portion of the treatment area (see fig. 14/16 items radiation beams are interfering over a limited portion of the treatment/grating area).

Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 20.

Regarding claims 38 the arguments presented in rejection of claim 19 are analogous in rejection of claim 38.

Regarding claim 48, Land teaches method for inducing a modification of the index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), said method comprising:

a) generating a first beam of electromagnetic radiation and a second beam of electromagnetic radiation different from the first beam of electromagnetic radiation (shown in at least fig. 14, items two optical beams);

b) directing the first and the second beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area on the substrate to electromagnetic radiation, the first and the second beams of electromagnetic radiation interacting to create an Interference pattern over a limited portion of the treatment area (see fig. 14/16 items radiation beams are interfering over a limited portion of the treatment/grating area).

Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 48.

Response to Arguments and Amendment

Applicant's argument filed on 9/12/05 have been fully considered, however, applicants arguments specifically regarding the above independent claims are not persuasive.

Regarding independent claims 1, 20, and 48, applicant alleges (page 15 last parag.-page 24) that Land does not teach limitations of the claims specifically the treatment area being a limited portion and that the beam being 'conditioned', however, applicant regarding other limitations of the base claims does not specify which and/or why Land's apparatus does not have and/or is not capable of performing any limitation(s) of the claimed invention. The examiner responds that indeed Land teaches 'conditioned beam' as shown in at least fig. 14 in which the beam first being conditioned by Grating G1 and subsequently conditioned by Gratings G2 and G3 and then the resulting beams treat a limited portion of the substrate/waveguide. Regarding applicant's argument that Land does not teach wherein the Brag grating has an apodization, the examiner responds that Land teaches this limitation (see page 35, lines 8-19) although such limitation is moot since it depends on allowable claim 53.

THIS ACTION IS MADE FINAL

This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

Art Unit: 2883

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kianni C. Kaveh whose telephone number is 571-272-2417. The examiner can normally be reached on 9:30-19:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/22/05



**KAVEH KIANNI
PRIMARY EXAMINER**